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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,247

06/20/2003

Xia Tang

02-641/EH-10787

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34704 7590 08/17/2007  
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EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1742

MAIL DATE

DELIVERY MODE

08/17/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/601,247

Applicant(s)

TANG ET AL.

Examiner

Lois Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>22 May 2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of Claims***

1. No claim amendments are made in applicant's response filed 22 May 2007.

Therefore, claims 3 and 5-12 remain under examination.

### ***Claim Objections***

2. Claim 12 is objected to due to the following minor informalities:

Claim 12 does not further limit the patent claim 7.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 3 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengston et al. US 6,692,583 B2(Bengston) in view of Tomlinson US 5,380,374 (Tomlinson).

The rejection ground for the instant claims are maintained for the same reasons as stated in paragraph 5 of the previous Non-Final Office Action mailed 3 May 2007.

5. Claims 3 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushima in view of Oppen et al US 4,264,378(Oppen), and further in view of Tomlinson.

The rejection ground for the instant claims are maintained for the same reasons as stated in paragraph 6 of the previous Non-Final Office Action mailed 3 May 2007.

***Response to Arguments***

6. Applicant's arguments filed 22 May 2007 have been considered but are not persuasive.

In the remarks, applicant provided a paper titled "Behaviour of Metals in Nitric Acid" in Exhibit I to support applicant's argument regarding the formation of the desirable nitrous acid from cathodic reduction sequence of nitric acid.

Exhibit I teaches that two types of reaction can take place when nitric acid undergoes cathodic reduction. One reaction leads to formation of hydrogen and the other leads to formation of nitrous acid. Exhibit I also teaches that when a platinum cathode is used, hydrogen is formed initially and continues to form as long as current density is above a certain critical value. Nitrous acid only forms when current density is below this critical value. Exhibit I further teaches that the critical current density is affected by the concentration of the nitric acid as well. See first paragraph under the section titled "Cathodic Behaviour of Nitric Acid" on page 121. When discussing behavior of different types of metals in nitric acid, Exhibit I discloses that highly reactive metals such as magnesium, when placed in nitric acid, can liberate hydrogen from non-oxidizing acids to yield hydrogen and produce sufficiently high cathodic current density capable of sustaining the hydrogen formation. See second paragraph under the section titled "Classification of Metals".

Based on the above teaching, the examiner does not find applicant's argument persuasive since Exhibit I clearly teaches that magnesium in the presence of nitric acid as taught by Bengston in view of Tomlinson only leads to the formation of hydrogen, not

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nitrous acid as alleged by the applicant. In addition, Exhibit I shows that other factors such as current density and nitric acid concentration also affect the outcome(i.e. either forming hydrogen or nitrous acid) of the cathodic reduction of nitric acid. Therefore, the examiner maintains that the nitric acid in the coating solution of Bengston in view of Tomlinson is not reduced to the undesirable nitrous acid as alleged by the applicant.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ

ROY KING   
SUPERVISORY PATENT EXAMINER  
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